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Publication date:
2015

Document Version
Publisher's PDF, also known as Version of record

Canadian Society for Chemistry | *For Our Future*

98th Canadian Chemistry Conference and Exhibition

OTTAWA, ON
JUNE 13-17, 2015

Ritter-Hydrolysis Cascade Strategy for the Synthesis of Substituted gamma-Lactams

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N-Acyliminium ions are reactive synthetic species that have been used in several organic reactions, such as Pictet-Spengler, Mannich and Petasis reactions. In our continued efforts to explore the synthetic utility of *N*-acyliminium ions, we report an efficient Ritter-hydrolysis cascade strategy for the synthesis of novel substituted γ-lactams. In-situ generated *N*-substituted acyliminium ions, masked as dihydroxy-γ-lactams obtained using a reductive-cyclization method, were reacted with commercially available aryl nitriles to give bicyclic unsaturated molecules. A following acidic hydrolysis reaction afforded target substituted -lactams with an aryl amino moiety, which is present in a wide range of natural products, biologically active molecules, and more than 300 approved drugs. A combined Ritter-hydrolysis cascade reaction yielded the target compounds in good to excellent yield. High *cis*-diastereoselectivity was observed. This reaction has shown to be tolerable to a broad selection of different *N*-substituted acyliminium ions and aryl nitriles bearing substituents of different electronic properties on the aromatic ring. This method of using *N*-acyliminium ions in Ritter-hydrolysis reactions serves as an important supplement to the current reservoir of synthetic applications of *N*-acyliminium ions.